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1. The Library shall be open daily from 10.30 till 4 o'clock, except during the month of August, when it shall be closed for the annual revision of the Catalogue.

2. Members shall not be allowed to borrow more than three volumes at one time, except with the sanction of the Library Committee.

3. Books shall not be lent for a longer period than one month, but when a book is returned it can be re-borrowed, provided it has not been bespoken in the interim by another Member.

4. Books shall be lent only on the receipt of the borrower in a book to be kept in the Library for the purpose, or on the receipt of a messenger bearing a written order signed by the borrower.

5. Members losing, injuring or defacing any book shall supply another copy, or shall be liable to pay such sum as the Library Committee may determine.

6. Cyclopædias, Works of Reference, and unbound numbers of Scientific Journals and Periodicals shall not be lent; but they may be consulted in the Hall during the hours above mentioned.

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Extract from the Rules and Regulations of the Faculty of Actuaries in Scotland:—

"It shall be one of the objects of the Faculty to form a Library of professional works for consultation and reference, the arrangements in regard to which shall be entrusted to the Council, subject to the approval and control of the Faculty.[1]

"Students shall have access to the Library with consent of the Council, and under such regulations as they may from time to time resolve on, and the Council may also confer the like privilege on members of the Actuarial Society."[2]

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[1] The Council will be happy to receive for the Library donations of Books and Pamphlets on professional subjects. These may be sent to the care of the Acting Secretary, or to the Members of the Library Committee, and will be acknowledged in the Minutes of the Faculty. A list of Donors will be found at the end of the Catalogue.

[2] The Actuarial Society was founded in January 1859, among the junior members of the profession, for the purpose of promoting discussions and the reading of papers on actuarial, mathematical, and other cognate subjects.

ARRANGEMENT ADOPTED IN THE CATALOGUE.

THE Catalogue is arranged alphabetically, the title and a full description of each book being given under the *Author's name*, a brief description being also given under the *subject of the work*. The papers read before Actuarial or Insurance Societies or Institutes are detailed under the name of the Society or Institute, but in the case of collective publications, such as the British Almanac and Statistical Journal, a list is given only of such of the articles or treatises therein as are considered most useful to the Actuarial student.

The following are the principal Subject-headings :—

Accident Insurance.
Acts of Parliament.
Actuarial Reports.
Actuarial Societies.
Actuarial Tables.
Actuaries.
Actuaries (Faculty of).
Actuaries (Institute of).
Arithmetic and Theory of Numbers
Biography.
Blue Books.
Book-keeping.
British Almanac.
Courts of Law (Scotland).
Dictionaries.
Electricity.
Encyclopædias.
Entails (Scotland).
Finance, including Banking, Bimetallism, Currency, Decimal System, Exchanges, Investments, Money, etc.
Fire Insurance.
Friendly and other Societies.
History.
Insurance.
Insurance, etc., Societies.
Interest and Annuities-certain.
Law.
Life Assurance.
Life Contingencies, including Actuarial Tables.
Marine Insurance.
Mathematics, including Algebra, Differential and Integral Calculus, Finite Differences, Geometry, Logarithms (Theory and Tables), Probabilities, and Trigonometry.
Mortality (construction of Tables and Experience).
Periodicals.
Political Economy, including Industry and Commerce, Taxation and Taxes, and Theory of Population.
Population.
Problems and Solutions.
Registrar-General's Reports.
Royal Society.
Science.
Statistical Society.
Statistics.
Tables (Mercantile).

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The following abbreviations are used in the Catalogue:—

For	B.I.	read	Birmingham Insurance Institute.
	B.M.A.	,,	Proceedings of the British Medical Association.
	F.S.	,,	Friendly Society.
	I.I.	,,	Insurance Institute of Ireland.
	J.I.A.	,,	Journal of the Institute of Actuaries (London).
	J.S.S.	,,	Journal of the Statistical Society (London).
	M.A.	,,	Insurance Association of Manchester.
	M.I.	,,	Insurance Institute of Manchester.
	M.O.	,,	Life Assurance Medical Officers' Association.
	N.S.W.I.	,,	New South Wales Insurance Institute.
	P.	,,	Pamphlets.
	T.A.	,,	Transactions of the Actuarial Society (America).
	T.E.	,,	Transactions of the Actuarial Society (Edinburgh).
	T.G.	,,	Transactions of the Insurance and Actuarial Society (Glasgow).
	V.I.	,,	Victoria Insurance Institute.
	W.F.	,,	Widows' Fund.
	Y.I.	,,	Yorkshire Insurance Institute.

A

Abbe (C.). Historical Note on the Method of Least Squares. Washington 1871

Abbott (T. D.).

Workers in Wood. [M.I.] 1875
Tanneries. [M.I.] 1877

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ACCIDENT INSURANCE.

Brown (*H.*). Sickness and Accident Insurance. 1896
Davidson (*J.*). Liability and Accident Insurance. 1895
Farr (*Dr. W.*). Premiums for Accident Insurance. 1880
Goode (*R. P.*). Accident Insurance—its leading features. 1898
Marsh (*E. J.*). Mortality from Casualties in the experience of the Mutual Life Insurance Company of New York. 1896
Mucke (*J. R.*). State Insurance against Accidents. 1881
Neison (*F. G. P.*). Rate of Fatal and Non-fatal Accidents in and about Mines and on Railways, with the cost of Insurance against such Accidents. 1880
——— Report upon a scheme for the re-insurance of the Fatal Accident Risks of Miners' Permanent Funds. 1882
——— Statistics of Accidents in Mines (contained in various Reports).
Paull (*R. J.*). Accident Insurance. 1893
Smith (*H. L.*). Accident Insurance. 1888
Swiss Government Report on Mutual Accident Insurance. 1895
Tate (*C. M.*). Accident Insurance. 1889
Whitworth (*F.*). Accident Business. 1893
See also Blue Books—Employers' Liability—J.S.S.—Registrar-General's Reports—Switzerland—Teece—United States.

ACCIDENT INSURANCE (Law of). *See* Crawley (C.)—Harvey (W.)—Porter (J. B.).

Accountants in Edinburgh (Society of).
Royal Charter of Incorporation, dated 23rd October 1854. [P].
Regulations, etc., of the Society. [P.] Edin. 1855

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Accountants and Actuaries (Institute of, Glasgow).
Catalogue of Library. 1889

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Accountants' Magazine, to date.

ACCOUNTS AND ACCOUNTING. *See* Book-keeping.

ACCOUNTS, etc., of Life Offices returned to the Board of Trade.
See Ayres (H.)—Bentley (J.)—Blue Books—Christie (R.)—Post Magazine.

Ackland (T. G.). An investigation of methods for deducing rates of mortality and withdrawal in years of duration, with application of such methods to the computation of the rates experienced and the special benefits granted by Clerks' Associations. (From J.I.A., vol. 32.) (2 copies.) Lond. 1897

Ackland (T. G.) and Hardy (G. F.). Graduated exercises and examples for the use of students of the Institute of Actuaries' Text-Book, with solutions. (3 copies.) Lond. 1889

Ackland (T. G.) and Smee (A. H.). On the assurance risks incident to professional military and naval lives, and the rates of extra premiums which should be charged for such risks. (Joint report to the Gresham Life Office.) Lond. 1890.

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Church of Scotland Ministers' Widows', etc., Fund Act, 1779. [P. vol. 18.]
Turnpike Roads Act 1823. [P. vol. 7.]
Advocates' Widows' Fund Act 1830.
W.S. Society Widows' Fund Act 1831.
Schoolmasters' Widows' Fund (Scotland) Act 1846.
Sales of Reversions Act 1867
Policies of Assurance Act 1867 } J.I.A. vol. 14.
Life Assurance Companies' Act 1870
Married Women's Property Act 1870 } J.I.A. vol. 16.
Life Assurance Companies' Acts 1871 and 1872. J.I.A. vol. 17.
Friendly Societies' Act 1875
Act to Regulate Joint-Stock Banks 1844 } [P. vol. 13.]
Act for the Registration, Incorporation, and Regulation of Joint-Stock Companies 1844.
Married Women's Policies of Assurance (Scotland) Act 1880. J.I.A. vol. 23.
Married Women's Property Act 1882. J.I.A. vol. 24.
Government Annuities Act 1882 (with tables). [P.]
Scottish Provident Institution Act 1884.
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Friendly Societies' Act 1875, corrected as authorised by the Acts of 1887 and 1895.
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Canada—Consolidated Insurance Act 1877. [P. vol. 19.]
Life Assurance Act 1894.
Newfoundland—Consolidated Statutes—Life Assurance Companies.

ACTS OF PARLIAMENT— *Continued.*

New South Wales—Life Assurance Act 1887.
New Zealand—Life Assurance Companies' Act 1873.
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Tasmania—Life Insurance Companies' Act 1874.
Victoria—Companies Act 1890, Part III., relating to Life Assurance Companies.

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History of the formation of the Society. (2 copies). N. Y. 1889.

Transactions (2 copies)—

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Value of New Blood in Life Insurance. B. J. Miller.
Continued Life and Growth dependent on right principles. R. P. Field.
The Proper Treatment of a Life Insurance Company in which the Reserve has become impaired. S. Homans.
Adverse Selection by Withdrawal. H. W. St. John.
Just apportionment of the expenses of Mutual Life Insurance Companies. W. E. Starr.
Actuarial Elements involved in Fire Insurance. W. S. Nichols.
Policy Values—one of their Relations. J. H. Sprague.
Analysis and Disposition of Gains over assumed Liabilities. A. S. Wing.
Formulae for ascertaining Contributions to Surplus. E. McClintock.
Concerning Extra Premiums. D. P. Fackler.
Some thoughts regarding margins for Expenses and Contingencies and Surrender Charges. S. Homans.
On the Provision for and Assessment of Life Insurance Expenses, etc. W. C. Wright.
Observations on Impaired Lives. J. M. Craig.

1891.

Insurance Values as Bases for Surrender Charges. S. Homans.
Insurance Values and Distribution of Surplus. W. Hendry.
Some thoughts on the principles involved in Graduation. W. S. Nichols.

Actuarial Society of America—*Continued.*

Transactions—Continued.

Tate's Arithmometer. M. H. Peiler.
Standard for measuring the effects of Selection among Insured Lives. W. D. Whiting.
Method of measuring the maximum amount which an Insurance Company may properly assume on a single life. C. C. Hall.
Weight and Longevity. T. B. Macaulay.
Double Endowments. I. C. Pierson.
Comparison of American and Australian Mortality. R. Teece.
Distribution of Expenses in Life Insurance. W. D. Whiting.
Cash Surrender Values for Life Insurance Policies. B. J. Miller.
On a complete Annuity-Due. J. H. Sprague.
Insurance Values as Bases of Surrender Charges. J. M. Craig.

1892.

Monetary Mortality Experience on Annuities in American Life Insurance Companies. R. W. Weeks.
Ratios of Mortality for Number and Amount. A. S. Wing.
Percentage Formula for obtaining Return Premium Rates. S. E. Stilwell.
On the correct or Equitable Distribution of Incidental Surplus. W. C. Wright.
Legislation regarding Impairment (Fackler Prize Essay). A. A. Welch.
Application of the Contribution Plan to the Distribution of Surplus. D. H. Wells.
Proper Basis for Surrender Charges. J. H. Sprague.
Mathematical Principles involved in a Mortality Table based on Lives or Amounts. W. S. Nichols.
Report of Special Committee on Suggestions regarding the Investigation of the Mortality Experience of Life Insurance Companies.

1893.

Simple Endowments and Insurances involving a Return of Premiums with Simple or Compound Interest. D. P. Fackler.
Comparison of American and Australian Mortality. R. Teece.
Retrospective Forms of Valuation in Practice. M. H. Peiler.
Farr's Healthy English Male Life Table—4 per cent. D. J. McG. McKenzie.
Error in Age. J. G. Richter.
Apportionment of Surplus to the holders of Completed Contracts. O. B. Ireland.
Effect of Selection, Essay on. E. McClintock.
Apportionment of Expenses and its Relation to the Distribution of Surplus. W. E. Starr.

Actuarial Society of America—*Continued.*

Transactions—Continued.

Influence of the Age at Entrance on the Force of Selection. T. B. Macaulay.

Mortality Surfaces. M. Léon Marie, translated by H. W. St. John.

Value of Medical Examinations in Industrial Insurance. W. S. Nichols.

Policies or Lives, and Amounts at Risk. A. S. Wing.

Mortuary Dividend Policies. M. W. Torrey.

Present Financial Crisis and Legislation concerning Impairment. D. P. Fackler.

1894.

Life Table based upon Insurance in the American Tropics. C. N. Jones.

Different Methods proposed for valuing the Marketable Securities held by Life Insurance Companies. H. J. Messenger.

Fluctuation of the Rate of Mortality *versus* the Rate of Loss. C. Hildebrand.

Method of Apportioning Surplus used by Australian Companies. D. Carment.

Suggestions in respect to dealing with Companies in which the Reserve is impaired. H. W. Smith.

Formula for Valuations by Groups. W. D. Whiting.

Methods of Distribution pursued in Great Britain. R. G. Hann.

Extended Term Insurance. W. Hendry.

Graphic Interpolation by Mechanical Means. G. F. Salter.

1895.

Rates of Death Loss among Total Abstainers and others. E. McClintock.

Loans on Life Insurance Policies. B. J. Miller.

Formulas for the direct application of Interpolated Values of well-known policies to the valuation of Limited Payment, Changed and Lien Policies. A. K. Blackadar.

Proper Charges for Annuities and Assurances to provide for a decreasing rate of interest. D. P. Fackler.

Errors in Valuation. C. N. Jones.

Monetary Analysis of the Vitality Gain of the New England Mutual Life Insurance Company for the years 1889-1893. W. C. Wright.

Error in Age (continued). J. G. Richter.

Mortality Experience (1847-1893) of the Canada Life Assurance Company. A. K. Blackadar.

Why is the Mortality Experience on Endowment Policies more favourable than on Life Policies? A. S. Wing.

Effect of hard times on the standard of selection of Life Risks. W. T. Standen.

Actuarial Society of America—*Continued.*

Transactions—Continued.

Premiums paid on Bonds and the Interest Account. G. Wegenast.
An Actuarial Proposition and a Suggestion. W. C. Wright.
*Decreasing Rates of Interest in connection with Annuities and Insurances. D. P. Fackler.
*Necessity of a Universal Notation.
A. Bégault, translated by G. F. Salter.
* Do. I. C. Pierson.
*In valuing Policies, should any allowance be made on account of the expense of obtaining New Business?
Dr. T. B. Sprague, with remarks by S. Homans.
*On the Intervention of the Legislator to permit or assume the supervision of the operations of Life Insurance Companies.
H. W. St. John.
* Do. T. B. Macaulay.

**Papers by Members read at the International Congress of Actuaries, Brussels, September* 1895.

1896.

Mortality Experienced on Annuitants (European and American) in American Life Insurance Companies. R. W. Weeks.
Note on Cost of Insurance. E. L. Stabler.
Interest Requirements and Mortality Costs. W. D. Whiting.
On Reckoning in Games of Chance.
Christian Huygens, translated by E. W. Scott.
Review of the Published Mortality Experience of the four French Companies. E. L. Stabler.
Finlaison's 1883 Select Female Annuitants, Commutation Columns and Annuity Values, 4 per cent. D. J. McG. McKenzie.
Insurance Values as Bases for Surrender Values. S. Homans.
Mortality prevailing among Annuitants. T. B. Macaulay.
Data and Tables from 'Life Insurance; an applied Science.'
I. C. Pierson.

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What constitutes an Insurable Interest in Lives? C. C. Hall.
Meech's Life Tables. H. W. St. John.
Cost of Insurance. J. M. Craig.
Level Premium Life Insurance—Historical Note. J. A. de Boer.
Note on the legal Ratio of $15\frac{1}{2}$ (in coinage of silver).
M. Léon Walras, translated by H. W. St. John.
Government Legislation of Holland in reference to the working of Life Insurance Companies. L. Wolterbeek.
Tendency to National Supervision. E. P. Marshall.
Note on a particular case of Loans repayable by instalments.
J. Tatlock.
Province of Equity in Life Insurance. W. S. Nichols.

Actuarial Society of America—*Continued.*

Transactions—Continued.

Note on Premium Loading. W. C. Wright.
Problem of the Value of Money.
M. Léon Walras, translated by R. W. Weeks.
Cost of Insurance. M. W. Torrey.
Johan De Witt. E. W. Scott.

1898.

The Limitations of the system of Net Valuations. W. S. Nichols.
Provision for and distribution of Expenses. W. D. Whiting.
The Ideal Life Insurance Company. J. M. Holcombe.
Select Life Tables as the basis of premium rates. T. Bradshaw.
General Principles. E. McClintock.
Individualism *v.* Communism in the conduct of a Life Insurance Company. A. A. Welch.
An equitable method of determining Paid-up or Cash Surrender Values. D. P. Fackler.
Select Life Tables as the basis of Premium Rates (continued). T. Bradshaw.
Modification of McClintock's formula for an approximation of Accumulated Contribution to Surplus. G. L. Plumley.
Valuation of Reversionary Annuities by Commutation Columns. M. H. Peiler.

Actuarial Society of Edinburgh.

Laws. [P.] 1868 and 1894

Presidential Addresses (2 copies—incomplete)—

1863-64. Raleigh (S.)
1865-66. M'Candlish (J. M.)
1867-68. Maclagan (D.)
1868-69. Sang (E.)
1869-70. Meikle (J.)
1870-71. Turnbull (A. H.)
1872-73. M'Candlish (J. M.)
1873-74. Thomson (W. T.)
1874-75. Sprague (T. B.)
1875-76. Meikle (J. M.)
1877-78. Thomson (S. C.)
1878-79. Deuchar (D.)
1879-80. Turnbull (A. H.)
1880-81. Marr (T.)
1881-82. Smith (A. G.)
1882-83. Sprague (T. B.)
1883-84. Low (G. M.)
1884-85. Meikle (J.)
1885-86. M'Candlish (J. M.)
1886-87. Thomson (S. C.)
1887-88. Deuchar (D.)
1888-89. Smith (A. G.)
1889-90. Turnbull Smith (J.)
1890-91. Turnbull (A. H.)
1891-92. Sprague (T. B.)
1892-93. M'Candlish (J. M.)
1893-94. Low (G. M.)
1894-95. Deuchar (D.)
1895-96. Sorley (J.)
1896-97. Paulin (D.)
1897-98. Thomson (S. C.)
1898-99. Gunn (N. B.)

Transactions (3 copies)—

Vol. I.

1. On the 5th and 6th Schedules of the Life Assurance Companies' Act 1870, by David Deuchar. 1879

Actuarial Society of Edinburgh—*Continued.*

Transactions (3 copies)—*Continued.*

2. On Joint Life Annuities, by J. J. M'Lauchlan. 1879
3. The Rationale of Life Assurance Premiums, by James Meikle. 1879
4. On the comparative amount of Reserves obtained by different Valuations, by A. H. Turnbull. 1879
5. Practical notes on the training and duties of an Actuary, by Thomas Marr. 1880
6. Note on war mortality in recent campaigns, by A. G. Mackenzie. 1881
7. On money and the future rate of interest, by A. G. Smith. 1882
8. The Theory of Finance, by George King. 1882
9. Remarks on the exercise of independent thought, by T. B. Sprague. 1883
10. The history and work of the Actuarial Society of Edinburgh, by G. M. Low. 1884
11. On the official publications of the Mortality of Assured Lives, by James Meikle. 1885
12. Notes on the Theory of Logarithms, by W. R. Macdonald. 1885
13. On the several mortality tables employed in the valuation of Annuity Contracts, by G. H. Ryan. 1885

Appendix—List of Papers read before the Society from its institution.

Vol. II.

1. The duties of an Actuary in his professional relationships, by J. M. M'Candlish. 1886
2. A comparison of the Rates of Mortality among Insured Lives and Government Annuitants, having regard to the effect of selection, by James Chatham. 1886
3. Remarks on the position and prospects of the Actuarial profession, and of the Business of Life Assurance, by S. C. Thomson. 1887
4. On Life Assurance Book-keeping, by J. J. M'Lauchlan. 1887
5. The progress of Life Assurance Business in the United Kingdom during the last fifty years, by David Deuchar. 1888
6. On the rate of mortality among Liquor-sellers, by Thomas Wallace. 1888
7. Some Remarks on the Report by the Commissioners appointed to investigate into the recent changes in the relative values of the Precious Metals, by A. Gillies-Smith. 1888
8. Statistics as to the Mortality Experience among Assured Lives engaged in the Liquor Trade, by Gordon Douglas. 1888
9. The Mortality among Assured Lives viewed in relation to the sums at risk, by G. C. Stenhouse. 1889
10. Outside Business Training, by J. Turnbull Smith. 1889

Actuarial Society of Edinburgh—*Continued.*

Transactions (3 copies)—*Continued.*

11. The Tenure of Land in the United Kingdom and its principal Colonies, by A. H. Turnbull. 1890
12. On some Formulas for use in Life Office Valuations, by J. J. M'Lauchlan. 1890
13. On some Fundamental Principles in the Theory of Probability, by Professor Chrystal. 1891

Vol. III.

1. On the Interests of Heirs of Entail and the Calculation of the Pecuniary Values, by Henry R. Cockburn and Robert Murrie.
2. Administration—Notes by an Old Hand, by John M. M'Candlish. 1892
3. The Recent Australian Bank Failures, by George M. Low. 1893
4. On Probability and Chance, and their connection with the Business of Insurance, by T. B. Sprague. 1893
5. Misrepresentation and Concealment as affecting Policies of Insurance, by William Harvey. 1894
6. The Present Position of the Silver Question, by Professor J. Shield Nicholson. 1894
7. Life Assurance in Canada, by Frank Sanderson. 1894
8. Notes on Widows' Funds, by David Deuchar. 1894
9. Life Office Investments—Retrospect and Outlook, by David Paulin. 1895
10. Lectures on Insurance Law, by William Harvey. 1895
    I. Conditions in Life Policies.
    II. Policies of Insurance as Securities and in Trust.
    III. Accident Insurance.
    IV. Conditions in Fire Policies.
11. A Commentary upon the Married Women's Policies of Assurance (Scotland) Act, 1880, by A. H. B. Constable. 1896
12. I. Note on the Rate of Mortality in Sierra Leone.
    II. An Investigation as to how far Life Insurance is of a Provident Nature as benefiting the Assured and his Family; and how far it is of a merely Financial Character, as benefiting his Creditors and Assignees, by A. E. Sprague. 1896
13. Note on Select Life Tables, by J. R. Hart. 1896
14. The Evolution of Premium Rates, a chapter in the History of Life Insurance, by James Sorley. 1896

Vol. IV.

1. Old Age Pensions and Pauperism, by David Paulin. 1896
2. On an Investigation into the Mortality of the Married Females of the Peerage, by J. R. Hart. 1897
3. A Description of certain of the principal Stock Exchange Securities, by J. Nicoll. 1897

Actuarial Society of Edinburgh—*Continued.*

Transactions (3 copies)—*Continued.*

4. Some Medical aspects of Life Assurance, by Dr. Leslie Ogilvie. 1897
5. On Extra Risk, with some particulars of the recent investigation of the mortality of persons engaged in the sale of intoxicating liquors, by G. M. Low. 1897
6. Forms of Life Office Books, by W. Smith-Nicol. 1897
7. Some Suggestions in regard to Life Office Accounting, including, *inter alia*, an arrangement of the American card system, suitable for the requirements of British Offices, by A. D. L. Turnbull. 1898
8. The practical calculation of Office Premiums, by Henry Moir. 1898
9. Past and Future, with some thoughts on Heredity, by S. C. Thomson. 1898
10. Some Notes on the Selection of Lives for Assurance, by N. B. Gunn. 1898
11. On the Mortality in certain hazardous or unhealthy occupations, by J. J. M'Lauchlan. 1899

The Theory of Finance, by George King. 2nd edition. (2 copies.) 1891
Do. do. 3rd edition. (2 copies.) 1898

Manuscript or Type-written Copies of Papers read before the Society but not printed in the *Transactions*—

On some special and historical questions in Probability, by J. E. A. Steggall. 1888
On Investigations into the Mortality of Assured Lives, by J. P. Longstaff. 1889
Classification of Lives (Deuchar Prize Essay), by J. Wilkie, Jun. 1889
Foreign Fire Insurance Business (Deuchar Prize Essay), by J. G. Borthwick. 1889
Woollen Mills (Deuchar Prize Essay), by J. P. Eddison. 1889
Inverse Rule in the Theory of Probability, by J. Govan. 1893

ACTUARIAL TABLES. *See* Actuaries, Institute of—American Experience Tables—American Life Offices (30)—Blue Books (Life Annuities)—British Life Offices—Carlisle—Chisholm (J.) Dawson (M. M.)—English Life—Gray (P.)—Henry (J.)—Interest and Annuities-certain—Life Contingencies—Mortality and Marriage Experience—Mortality Experience—Orchard (W.)—Scottish Bankers' Experience—Scottish Life Offices—Scottish Mortality—Smith (H. A.)—Tables.

ACTUARIES.

Bloxsom (*W. G.*). Some thoughts about the future of the Actuarial profession. 1877

Hewat (*A.*). Training for the Insurance Profession. 1893

Lewis (*J. N.*). The Actuarial Profession from a Branch man's point of view. 1896

Nicoll (*John*). Relation of the Actuarial Profession to the State. 1898

M'Candlish (*J. M.*). The duties of an Actuary in his professional relationships. 1886

Accountants and Actuaries: the work of the Actuary. 1887

Maclagan (*D.*). The education of an Actuary. 1867

Marr (*T.*). Practical notes on the training and duties of an Actuary. 1880

Raleigh (*S.*). On the profession of an Actuary. 1863

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3. Some principles of Fire Insurance, by Charles Salter.

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1. Marine Insurance, by C. Rennie.
2. Classification of Fire risks, by John Sinclair.
3. Valuation Reserves of Life Offices, by J. B. Gillison.
4. Modern extension of the liability of Marine Underwriters, by A. J. Masters.
5. Fire Surveys, by H. J. Smith.
6. Retiring Address, reviewing the work of the Session, by the President, E. S. Watson.

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1. Inaugural Address by the President, A. H. Young.
2. Life Assurance in Australia from a medical aspect, by Dr. F. M. Harricks.
3. Some improvements in Life Assurance practice, by T. S. Robertson.
4. Insurance prospects in the Colonies, by M. A. Ridge.
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6. Personal reminiscences of Insurance Business, by W. Macredie.

Papers read during Session 1887.

1. Inaugural Address, by C. Salter.
2. Plea for the Volunteer Fire Brigade, by G. R. Cherry.
3. Life competition; some of its results, by S. G. Martin.
5. Collision Clause, by C. Rennie.
6. Advantages of combination in matters other than rates, by C. E. Jarrett.
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8. Assessment of Life Risks, by J. B. Gillison.
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Victoria Insurance Institute—*Continued.*

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1. Inaugural Address, by C. Rennie.
2. Negligence clause in Bills of Lading, by E. E. Dear.
3. Gleanings from the vital statistics of Victoria, by T. S. Robertson.
4. Some aids to calculation, by J. B. Gillison.
5. Our ports and their dangers, by W. A. Paterson.
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1. Inaugural Address, by J. Sinclair.
2. Spontaneous Combustion, by W. Farquhar.
3. Mortality as affecting Life Assurance in Australia, by T. W. Bremner.
4. Electric lighting in relation to Fire risks, by G. Gibb.
5. Craft risks (marine), by B. Goldsmith.
6. Detection of diabetes and chronic Bright's disease among proponents for Life Assurance, by Dr. W. R. Fox.

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1. Inaugural Address, by J. B. Gillison.
2. Average clause in Fire Policies, by C. R. Colquhoun.
3. Reform of general average, by W. H. Jarrett.
4. Is Cancer Hereditary? by Dr. J. Talbot Brett.
5. Constructive total loss (marine), by A. C. Trapp.
6. Short treatise on Fire Insurance Surveying, by A. J. E. Murray.

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1. Inaugural Address, by C. E. Jarrett.
2. Automatic Sprinklers, by S. G. Russell.
3. Some points in connection with the medical examination of proponents for Life Assurance, by Dr. J. Jamieson.
4. Notes on electrical applications, by K. L. Murray.
5. Dangers of the Deep, by E. S. Watson.
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3. The Eleventh Commandment, by F. F. Leslie.
4. Lloyd's, by R. H. Robinson.
5. Run round the coast of New Zealand, by J. Mallard.
6. Australian Reminiscences, by A. J. Wright.

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Papers read during Session 1893.

1. Inaugural Address, by W. H. Jarrett.
2. Short term risks in Fire Insurance, by J. Sinclair.
3. Physical view of the Ocean and a short sketch of its history, by W. R. Ray.
4. Effects of financial depression on Fire Insurance, by C. R. Colquhoun.
5. Comparison of the Rates of Mortality in Victoria, 1881-91, with a special reference to Cancer, Phthisis, and violence, by R. D. Miller.
6. Co-operation, by A. J. Wright.

Papers read during Session 1894.

1. Inaugural Address, by M. A. Ridge.
2. Money and Bimetallism, by G. A. Russell.
3. Shipping Law, by Dr. Wollaston.
4. Conditions of Health after Life Insurance, by Dr. J. E. Neild.
5. Doom of General Average, by W. H. Jarrett.
6. Law of Heredity (Prize Essay), by W. Farquhar.

Papers read during Session 1895.

1. Inaugural Address, by E. E. Dear.
2. The Health Act; some of the effects of its proper administration to Life and Property, by Dr. W. Macansh.
3. Classification of Fire Risks, by C. R. Colquhoun.
4. Is Insurance Gambling? by A. C. Trapp.
5. Free Trade from an Insurance point of view, by J. T. Woods.

Papers read during Session 1896.

1. Inaugural Address, by G. Gibb.
2. Some Fire Insurance Gleanings, by R. S. Robertson.
3. Law-making, by E. S. Watson.
4. Development of the Export Trade of Victoria, by B. Goldsmith.
5. Old Age Pensions, by J. Pullar.
6. Objects of the Insurance Institute of Victoria, by F. F. Leslie.

Papers read during Session 1897.

1. Investments of Australasian Life Offices, by J. B. Gillison. (Inaugural Address.)
2. Gas and Acetylene as Illuminants, by Prof. D. O. Masson.
3. Some considerations on the Maritime Interest, Freight, etc., by W. R. Ray.
4. Heredity, by W. Farquhar.
5. Some Causes of Fire, by F. M. Syme.
6. Insurance Notes from an Eastern City, by A. C. Trapp.

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LIST of PRINCIPAL BOOKS and PAMPHLETS added to the Library since the publication of the Catalogue in 1899.

Annual Publications, Periodicals, Transactions of Insurance Institutes, etc., acquired and placed in Library in ordinary course.

Additional Copies of several works were also procured, though not included in the following List.

Actuaries. Faculty and Institute Joint Mortality Investigation. 1863-93

Volumes of Unadjusted Data relating to—

1. Annuitants (4 Copies). 1900
2. Endowment Assurances and Minor Classes (3 Copies). ,
3. Whole Life Assurances, Males (3 Copies). ,,
4. Do. do., Females do. ,,

Actuaries. Proceedings of Second International Congress of. 1898

Altenburger (J.). Theory of Policy Reserves in Life Assurance. 1900

American Experience. Net Premiums and Reserves at 3 per cent. published by Mutual Benefit Life Insurance Company of Newark, N.J. ,,

Barnes (R. Y.). New and Improved Universal System of Book-keeping. 1877

Bell (G.). Treatise on the Cow Pox. 1807

Catalogue of Insurance Library Association of Boston. 1899

Chrystal (Prof. G.). Introduction to Algebra. 1898

Church of Scotland Ministers' Widows' Fund. Original Calculations, with the Principles and Data, etc. 1748

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Combe (George). Moral Philosophy. 1893
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American Notes. 1896

Cory (R.). Theory and Practice of Vaccination. 1898

Creighton (Dr. C.). Jenner and Vaccination. 1889

Crookshank (E. M.). History and Pathology of Vaccination (2 Volumes). 1889

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Dawson (M. M.). Various derived Tables from American Mortality Experience. 1900

Edwards (Joseph). Differential Calculus for Beginners. 1899
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French Life Insurance Companies.
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Premium Rates, Prospectuses, etc. ,,

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Lisle (George). Accounting in Theory and Practice. 1899

M'Candlish (J. M.). Volume of Addresses on various Subjects.
M'Vail (John C.). Vaccination Vindicated. 1887
Manly (H. W.). Assessment Assurance. 1886
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Martin (Frederick). The History of Lloyds and of Marine Insurance in Great Britain. 1876

Newsholme (A.). Elements of Vital Statistics. 1899
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Paul (Alex.). Criticism of Vaccination Statistics. 1897

Report by Special Committee to London Chamber of Commerce on Secret Commissions. 1899
Rice (F. L.). Theory and Practice of Interpolation. ,,
Richardson (Sir B. W.). Biological Experimentation. 1896
Richardson (Ralph). Coutts & Co., Bankers, Edinburgh and London. 1900

Scottish Widows' Fund and Life Assurance Society. Compound Interest and Annuity and other useful Tables. 1900

Shaw (W.). Universal Interest Tables. ,,

Sieveking (E. H.). The Medical Adviser in Life Assurance. 1874

Sprague (Dr. T. B.). On the Eight Queens Problem. 1899

Strahan (J. A.). Law of Property. 1897

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Thoman (F.). Theory of Compound Interest and Annuities. 1859

Todhunter (I.). Method of Least Squares. 1866

Willoughby (W. F.). Working Men's Insurance in Germany, Austria, and Other Countries. New York, 1898

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Faculty of Actuaries in Scotland.

LIST of PRINCIPAL BOOKS and PAMPHLETS added to the Library since the publication of the Supplement to the Catalogue in 1901.

Annual Publications, Periodicals, Transactions of Insurance Institutes, etc., acquired and placed in Library in ordinary course.

Actuarial Society of America.

Transactions (2 Copies).

1899.

Note on Interest Rates. H. W. St. John

Special Tables for the Estimation of Mortality among Annuitants Emory M'Clintock

The Equities of the Policyholder under Term Extension where Liens exist on the Policy. Jesse J. Barker

Notes on the Rate of Interest for Premiums and Reserves of Life Companies. William M'Cabe

A Notable Annuity Experience: Mass. Hospital. W. C. Wright

The Actuary's Place in Science. W. S. Nichols

What is the Proper Loading on Life Insurance Premiums? J. G. Van Cise

The Value of Actuarial Testimony in the Courts. S. N. Ogden

Mortality Experience among Lives accepted at Ages over 60. R. G. Hann

Some of the Effects produced by a Change in the Interest Basis of Valuation. T. Bradshaw

Actuarial Society of America—(*Continued.*)

Transactions—(*Continued.*)

New Method of Approximation. J. B. LUNGER for A. HUNTER
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A Second Note on Premium Loading. W. C. WRIGHT
The Normal Rate of Interest. CHARLTON T. LEWIS
Should a Three per Cent. Valuation be made Compulsory?
WALTER S. NICHOLS

1900.

Mortality Experience—The North-Western Mutual Life Assurance Company. C. A. LOVELAND
Note upon Annuity Contracts. CLAYTON C. HALL
Duties of an Actuary from a Practical Standpoint.
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The Legal Rule of Valuation in case of Preliminary Term combined with Whole Life Policies. WALTER S. NICHOLS
Note on Accuracy in Numerical Tables. OSCAR B. IRELAND
Actuarial Science in Canada. THOMAS B. MACAULAY
On the Mortality during first Policy Year under Endowment Insurances. Institute—Faculty Experience.
ARTHUR HUNTER
Child's Endowments. A. C. WASHBURNE

Actuarial Society of Edinburgh.

Transactions (3 Copies.)

Vol. IV.

12. Some Questions arising in the Valuation of Special Class Policies. HUGH W. BROWN. 1900
13. Some Aspects of Sickness Insurance. HENRY BROWN. 1900
14. Notes on Life Assurance in the United States of America. ARTHUR HUNTER. 1900
15. Life Assurance in France. ALEXANDER LATTA. 1900
16. Life Office Investment, 1850 to 1900. AW. H. TURNBULL. 1900
17. On the Construction of a Table of Mortality. JAMES MEIKLE. 1901
18. On a Mode of Graduating a Table of Mortality. JAMES MEIKLE. 1901
19. On the preparation of a Table of Mortality from Observations of various Magnitudes. JAMES MEIKLE. 1901

Actuaries, Faculty of (Scotland.)

Examination Papers, 1890 to 1899 (2 Copies.)

Syllabuses and Examination Papers, 1856 to 1900.

Actuaries, Institute of (London.)

Text Book, Part I. (New Edition.) Interest (including Annuities-Certain.) By RALPH TODHUNTER. (6 Copies.) London, 1901

Origin of the Institute of Actuaries, etc. (Manuscript.)

Birmingham, Insurance Institute of.

Transactions.

Session 1898-99.

The Technical Equipment of an Out-door Life Officer. By JOHN HOLLIDAY.

Insurance Work in South Africa. By A. W. G. PRITCHARD.

Explosions, their Cause and Effect, as applied to Fire Insurance. By T. VAUGHAN HUGHES.

The Manner in which the Effect of Muscular Exercise upon the Heart and Blood Vessels alters the Expectancy of Life. By T. SYDNEY SHORT, M.D., etc.

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Transactions—(*Continued.*)

Personal Accident Insurance: A Retrospect and a Plea. By CHAS. H. GREEN.

Drafting Fire Insurance Contracts. By C. E. NOVERRE.

Session 1899-1900.

Metal-Working Risks. By J. HEADON BOOCOCK.

The Urine in its Bearing on Life Assurance. By O. J. KAUFFMANN, M.D., etc.

Some Elementary Notes on Mortality Tables, their Construction and Use. By THOMAS G. ACKLAND.

Boston, Insurance Library Association.

Reports of 1888-1900, with an Account of the Early Insurance Offices in Massachusetts, from 1724 to 1801. (3 Copies.) Boston, 1901

Bowley (A. L.). Elements of Statistics. London, 1901

Dean (A. F.). Fire-Rating as a Science. Chicago, 1901

Deuchar (D.). Early Actuarial and Managerial Associations. Edinburgh, 1901

Fire Underwriters' Association of the Pacific.

Proceedings of the 24th and 25th Annual Meetings. San Francisco, 1900 and 1901

Hayter (W. G.). The Law of Mortgage (Lectures delivered under the auspices of the Institute of Actuaries). London, 1901

Hoffman (F. L.). History of the Prudential Insurance Company of America (Industrial Insurance), 1875-1900. 1900

Insurance and Actuarial Society of Glasgow.

Fourth Series.

14. Observations on the Progress and Prospects of Fire Insurance as a Science. By DAVID L. LAIDLAW. 1899
15. Fire Insurance. By JOHN M. M'CANDLISH. 1900
16. The Education and Duties of an Insurance Expert. By T. E. YOUNG. 1900

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Life Assurance at the Commencement of the Nineteenth Century as shown in Documents relating to the Origin, Constitution, and Early History of the Scottish Widows' Fund and Life Assurance Society. (Reprinted in Facsimile.) Edinburgh, 1901

Life Assurance Medical Officers' Association (London).

Proceedings.

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Race in Relation to Life Assurance. By Dr. C. THEODORE WILLIAMS.

Locality and Occupation in Relation to Life Assurance. By Dr. G. V. POORE.

Extra Premiums, with Special Reference to their Removal after Re-Examination. By Dr. GLOVER LYON.

Manchester, The Insurance Institute of.

Transactions.

Session 1898-99.

Conflagrations during the last Ten Years. By CHARLES E. GOAD.

The Stability of British Life Assurance. By ARCH. HEWAT.

Heredity. By Dr. WILLIAM THORBURN.

Cotton Spinning Mills. By THOS. A. BENTLEY.

Manchester, The Insurance Institute of—(*Continued.*)

Transactions—(*Continued.*)

Session 1899-1900.

Cotton Spinning (Second Part). By THOS. A. BENTLEY.
The Detection and Importance of Small Quantities of Sugar in the Urine. By Dr. R. T. WILLIAMSON.
Cotton Weaving. By J. H. BAGSHAW.
Characteristics of the Tables of Mortality. By W. H. ALDCROFT.
Fires in Corn Mills, 1880-1899. By JAMES OSTLER.

Newcastle Insurance Institute.

Transactions.

Session 1898-1899.

Inaugural Address. By RILEY LORD.
The Selection of Lives for Assurance. By WILLIAM HUGHES.
Cycle Works. By F. W. PANTON.
Acetylene Gas. By JOHN HUNTER.

Session 1899-1900.

Inaugural Address. By JOHN G. BOSS.
Municipal Fire Insurance. By C. SHUTT.
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The Value of the Rontgen Rays in Insurance Work. By Dr. GEORGE HOGGIN.
Rope Works. By OWEN D. JONES.
Spontaneous Combustion. By Professor F. C. GARRET.

Parry (L. A., M.D.). Risks and Dangers of Various Occupations. London, 1900

Tetens (J. N.). Annuities and Reversions. Leipzig, 1785

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Victoria Insurance Institute.

Papers read during Session 1898—

1. Inaugural Address. By JOHN SINCLAIR.
2. Surveying Notes on the Tariff. By RICHARD MACDONNELL.
3. Some Notes on Architecture from a Fire Insurance Standpoint. By LLOYD TAYLER.

Victoria Insurance Institute—(*Continued.*)

Papers read during Session 1898—(*Continued.*)

4. Maritime Warfare: Its Connection with Insurance. By B. GOLDSMITH.
5. Albuminuria. By Dr. R. TATE SUTHERLAND.
6. Interest on Money. By JAMES PULLAR.

Papers read during Session 1899—

1. Inaugural Address. By A. F. CROMBIE.
2. Insurance Frauds—Fire and Marine. By W. A. PATERSON.
3. Wireless Telegraphy. By G. W. SELBY.
4. Longevity: The Various Influences affecting it, and its Relation to Life Assurance. By A. M. LAUGHTON.
5. Federation and Some of its Financial Aspects. By WM. H. THODEY.
6. Fighting Fire. By R. J. WHITE.

Papers read during Session 1900—

1. Inaugural Address. By A. C. TRAPP.
2. Probability and the Law of Averages. By JOHN SUTHERLAND.
3. Lucifer Matches. By Professor ORME MASSON.
4. Seaworthiness. By B. GOLDSMITH.
5. Building Construction and its Relation to Fire Insurance. By W. E. L. WEARS.
6. Insurance Institutes: Their Work and Objects. By CHARLES SALTER.

Yorkshire Insurance Institute.

Transactions.

1898-99.

Inaugural Address. By J. H. MILLS.

The History of Life Assurance in Great Britain. By J. C. MACMILLAN.

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Leather Tanning and Currying. By GEO. CHAPPELL.

Yorkshire Insurance Institute—(*Continued.*)

Transactions—(*Continued.*)

1899-1900.

Inaugural Address. By J. H. MILLS.

Fire Losses: A Few Notes on Claims, Adjustments, and Extinguishing Expenses. By E. A. BIRKS.

A Brief Exemplification of Life Assurance Book-keeping. By J. SPENCE LESLIE.

Employers' Liability and the Workmen's Compensation Act, 1897. By C. H. GREEN.

Extra Premiums for Life Assurance. By J. MOODY-STUART.

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1. Any Gentleman desirous of prosecuting his studies in connection with the Faculty may be enrolled as a Student, on the recommendation of two Fellows of the Faculty, and subject to the approval of the Council. A form of application may be obtained from the acting Secretary.

2. Any Student of the Faculty who shall have attained the age of twenty-one, and shall have passed, to the satisfaction of the Council, three Examinations, at such intervals and on such subjects as the Council may prescribe, shall be admitted an Associate.—Rule 6.

3. Any Student who shall have taken a Degree at one of the Universities of Great Britain or Ireland, mathematics having been one of the special subjects of examination for such Degree, being twenty-one years of age, may, in the discretion of the Council, be exempted from the first of the Examinations mentioned above.

4. Any Student who is a Fellow (by examination) of the Institute of Actuaries may, in the discretion of the

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5. Students pay upon enrolment a fee of £1, 1s., and thereafter, on the first day of January in each year, a subscription of 2s. 6d. On each occasion after the first of giving in his name for examination, a Student is required to pay a fee of £1, 1s.

6. In the event of any Student not having paid his annual subscription by the thirtieth day of June, his name is removed from the roll.

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10. The Examinations may be conducted in writing, or *viva voce*, or both, at the discretion of the Examiners. No means of information shall be allowed to candidates, except such as the Examiners may think proper to supply.

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Arithmetic.
Equations.
Series.
Permutations and Combinations.
Binomial Theorem.
Theory and use of Logarithms.
Elements of the Calculus of Finite Differences.
Theory of Probabilities.

SECOND EXAMINATION.

Interest and Annuities-certain, with Construction of Monetary Tables.

Probabilities of Life and of Survivorship.

Theory of Life Contingencies, including Annuities and Assurances, with Construction of relative Tables.

History and Characteristics of Mortality Tables.

Application of the Calculus of Finite Differences to Life Contingencies.

Elements of the Differential and Integral Calculus.

THIRD EXAMINATION.

Mortality, Marriage, and Sickness Investigations, including Construction of Tables from actual or from hypothetical data.

Graduation of Tables.

Formulas for Summation and Interpolation.

Application of the Differential and Integral Calculus to Life Contingencies.

Life Assurance Finance and Practice, namely :—

- Calculation of Premiums.
- Valuation of Assets and Liabilities.
- Distribution of Surplus.
- Surrender and Conversion of Policies and Bonuses.
- Book-keeping and Accounts.
- Investments.
- Miscellaneous Questions.

Law of Life Assurance.

Reversions, Life-Interests, and other Contingencies.

Widows' Funds, Superannuation Funds, and Friendly Societies,—Calculation of Rates, and Valuations.

12. Students are required to take the Examinations in the order in which they are prescribed. Unless for cause shown to the satisfaction of the Council, a Student must appear for examination within three years from the date of his enrolment, and subsequently at intervals of not more than three years; failing which his name shall be removed from the roll.

13. Students, on becoming Associates, pay an entrance fee of £2, 2s., in addition to the annual subscription (£1, 1s.) for the year then current.

14. Any Associate of the Faculty may, on application, be admitted a Fellow, subject to the approval of the Council. His application shall be considered at a meeting of the Council of which seven days' previous notice, specifying his name, shall have been given; and if a majority of those present approve of his admission he shall be declared duly admitted, and his admission shall be reported to the first General Meeting of the Faculty thereafter.—Rule 3.

15. Associates, on becoming Fellows, pay a further entrance fee of £2, 2s., in addition to the excess of the annual subscription of a Fellow (£2, 2s.) over that of an Associate for the year then current.

The Library of the Faculty—to which Students have access under such regulations as the Council may from time to time prescribe—contains all books necessary to be studied in connection with the subjects of the Examinations.

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FACULTY OF ACTUARIES IN SCOTLAND.

SYLLABUS OF EXAMINATIONS.

April 1904.

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